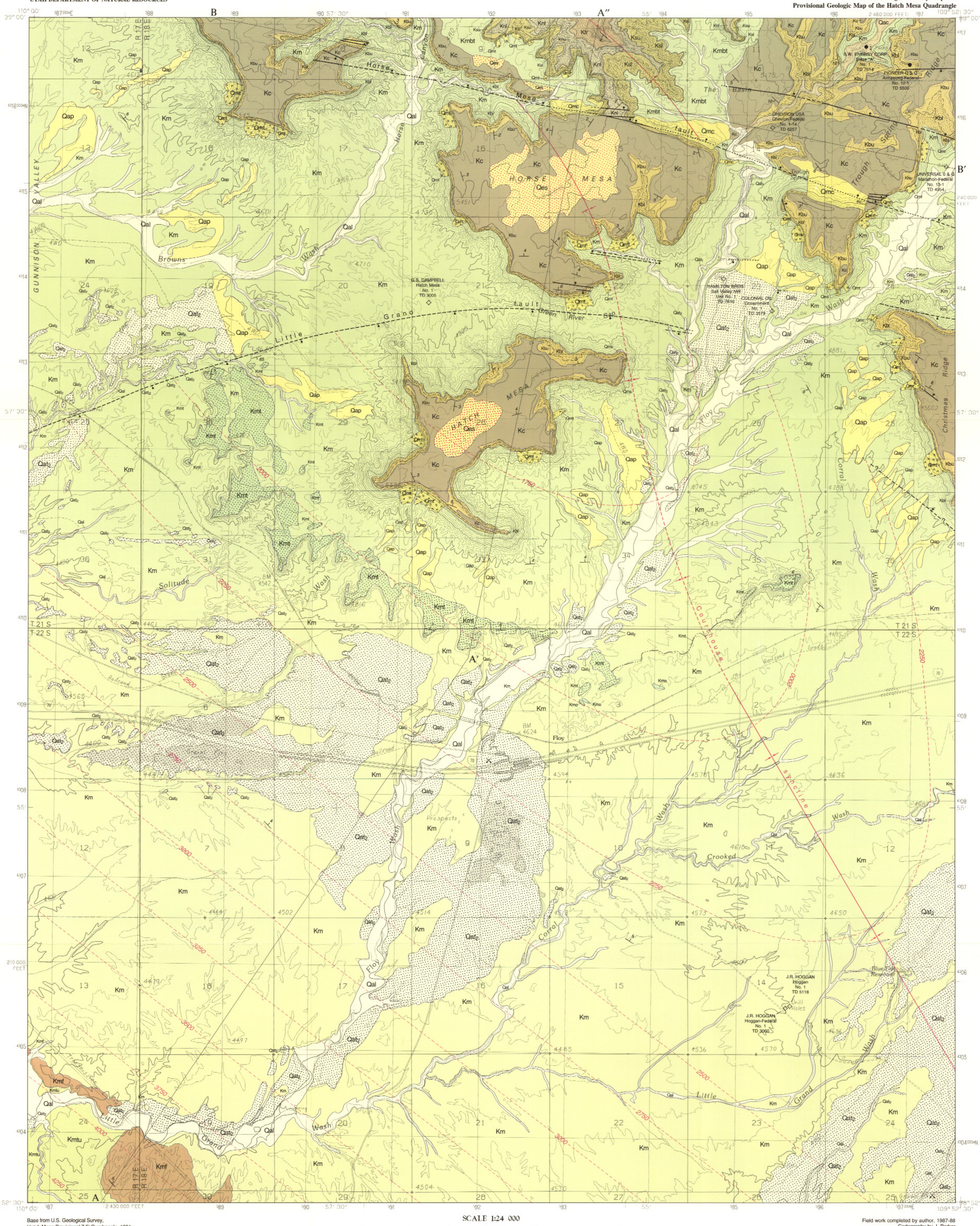
UTAH GEOLOGICAL SURVEY
a division of
UTAH DEPARTMENT OF NATURAL RESOURCES

Plate 1
Utah Geological Survey Map 152
Provisional Geologic Map of the Hatch Mesa Quadrangle



Base from U.S. Geological Survey,
Hatch Mesa Provisional 7.5' Quadrangle, 1991

Field work completed by author, 1987-88
Cartography by J. Parker

SCALE 1:24 000

1 .5 0 KILOMETERS 1 2
1000 0 METERS 1000 2000
1 .5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10 000
FEET

CONTOUR INTERVAL 40 FEET

MN
12°56′ E
230 MILS

1994 MAGNETIC NORTH DECLINATION
AT CENTER OF SHEET

PROVISIONAL GEOLOGIC MAP OF THE HATCH MESA QUADRANGLE, GRAND COUNTY, UTAH

by
John P. Chitwood

1994

UTAH

QUADRANGLE LOCATION

1	2	3	1 Tusher Canyon 2 Bobby Canyon South 3 Floy Canyon South 4 Green River NE 5 Crescent Junction 6 Green River SE 7 Dee Pass 8 Valley City
4		5	
6	7	8	

ADJOINING 7.5' QUADRANGLE NAMES

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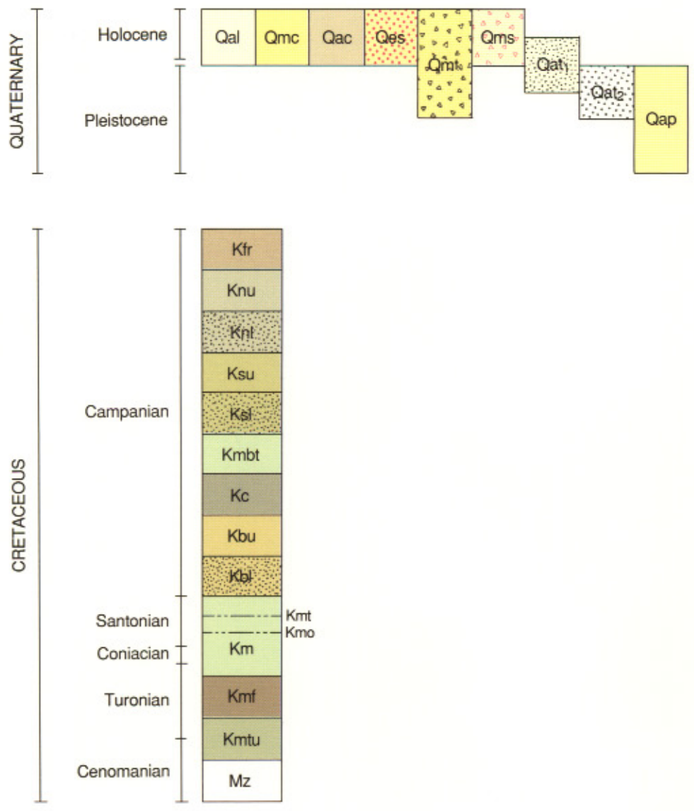
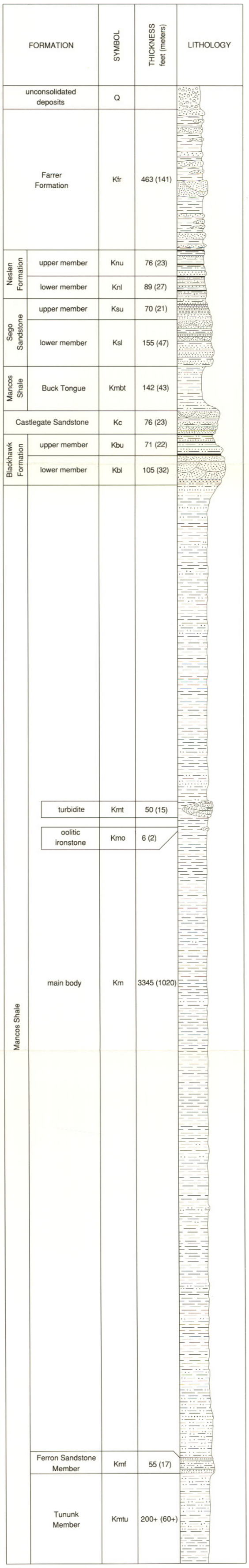
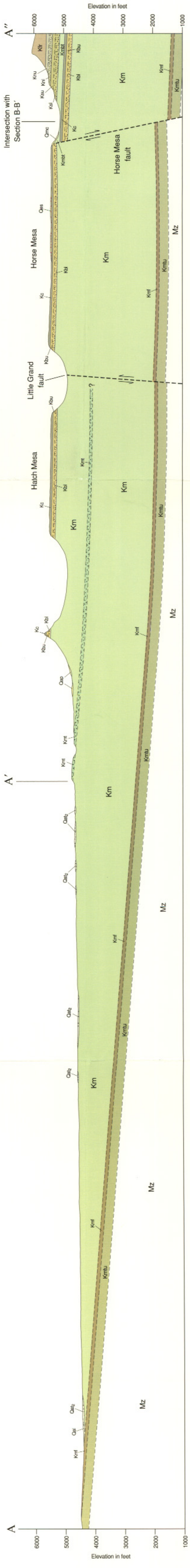
Plate 2
Utah Geological Survey Map 152
Provisional Geologic Map of the Hatch Mesa Quadrangle

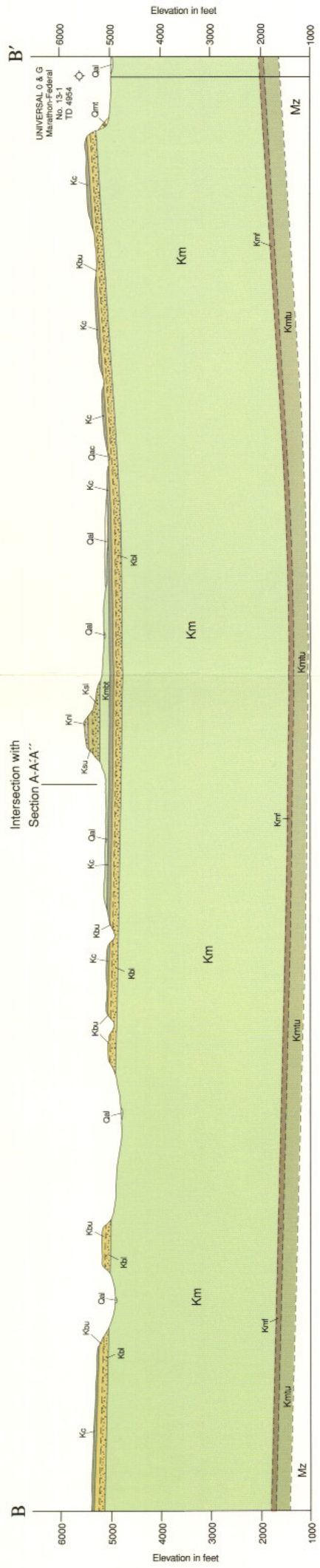
CORRELATION OF MAP UNITS



LITHOLOGIC COLUMN







DESCRIPTION OF MAP UNITS

Qal — Alluvium deposits - *Unconsolidated, round to angular, poorly to moderately sorted, very fine-grained sand- to boulder-sized particles; in intermittent stream deposits up to 12 feet (4 m) thick in canyons and washes.*

Qmc — Colluvium deposits - *Unconsolidated, subangular to angular, poorly sorted rock debris on slopes and canyon walls; forms vegetated, partially stabilized slopes; up to 4 feet (1.2 m) thick in many places.*

Qac — Mixed alluvium and colluvium deposits - *Poorly sorted deposits of mixed alluvium and colluvium up to 4 feet (1.2 m) thick in and along canyon stream beds.*

Qes — Eolian deposits - *Unconsolidated, well-sorted, subrounded to rounded, very fine- to fine-grained sand transported and deposited by wind action; deposits are up to 3 feet (1 m) thick.*

Qmt — Talus deposits - *Unconsolidated, angular, poorly sorted sandstone cobbles and boulders with minor amounts of finer sandstone and mudstone debris, deposited by mass movement (landslide) on slopes; deposits are up to 10 or more feet (3 m) thick.*

Qms — Slump deposits - *Large blocks of consolidated bedrock which have separated from a cliff-face and moved in a mass downslope; up to 75 feet (23 m) thick.*

Qat1 — Younger terrace deposits - *Locally derived, poorly sorted, consolidated alluvial sand and gravel deposits up to 9 feet (2.7 m) thick; contains bivalve (notably Exogyra) fragments.*

Qat2 — Older terrace deposits - *Poorly to well-sorted, subangular to rounded, exotic (quartzite, chert, limestone) gravel, with a minor amount of locally derived sandstone gravel; cemented in many places; up to 18 feet (5.5 m) thick in canyons, generally thinner in the Mancos lowlands; gradational with pediment gravel deposits.*

Qap — Pediment-mantle deposits - *Thin veneer of unconsolidated, poorly sorted, sand- to boulder-sized sandstone debris up to 1 foot (0.3 m) thick on gently sloping surfaces bevelled across nonresistant bedrock (Mancos Shale); dissected by streams in many places; the pediments are adjacent to the base of slopes along the Book Cliffs; gradational with older terrace deposits.*

Kfr — Farrer Formation - *Interbedded, pale- to dark-yellowish-orange, very light-gray, and moderate-reddish-brown lenticular sandstone and gray to pale-olive mudstone; approximately 460 feet (140 m) thick.*

Knu — Upper member of the Neslen Formation - *Interbedded, slope-forming mudstone, carbonaceous shale, coal, and ledge-forming sandstone; many sandstone beds are lenticular; contains the Chesterfield coal zone and many minor carbonaceous shale and coal zones; the Thompson Canyon sandstone bed crops out at the base of the unit; approximately 75 feet (23 m) thick.*

Knl — Lower member of the Neslen Formation - *Interbedded, slope-forming mudstone, carbonaceous shale, coal, and ledge-forming sandstone; contains the Palisade coal zone in the lower part; approximately 90 feet (27 m) thick.*

Ksu — Upper member of the Sego Sandstone - *Slope-forming, interbedded, yellowish-brown, silty mudstone and sandstone. The basal part is a coarsening-upward sequence similar to those in the lower member of the Sego Sandstone, but lacking a middle cliff-forming sandstone; the upper part is a fining-upward sequence; approximately 70 feet (21 m) thick.*

Ksl — Lower member of the Sego Sandstone - *Interbedded, gray to yellowish-brown, silty mudstone, yellowish-brown to very light-gray sandstone, and reddish-brown bivalve coquinas; generally cliff-forming, the unit forms ledgy slopes in many places, and contains three coarsening-upward sequences, each consisting of a basal transition zone, middle sandstone zone, and upper bioturbated sandstone or bivalve coquina; approximately 155 feet (47 m) thick.*

Kmbt — Buck Tongue of the Mancos Shale - *Medium- to dark-gray, bentonitic, gypsiferous mudstone. Slope-forming in many places, the unit forms "badlands" topography where not overlain by sandstone; approximately 140 feet (43 m) thick.*

Kc — Castlegate Sandstone - *Sandstone with minor mudstone; yellowish-orange sandstone in lower part, upper sandstone is light gray; prominent cliff-forming unit; approximately 75 feet (23 m) thick.*

Kbu — Upper member of the Blackhawk Formation - *Slope-forming interval of interbedded yellowish-orange sandstone, grayish-brown to grayish-black mudstone, carbonaceous mudstone, and minor coal; approximately 70 feet (21 m) thick.*

Kbl — Lower member of the Blackhawk Formation - *Cliff-forming interval of pale- to dark-yellowish-orange sandstone interbedded with gray mudstone in the lower part; massive sandstone in the upper part; uppermost part of the massive sandstone is light gray; approximately 105 feet (32 m) thick.*

Km — Mancos Shale (main body) - *Medium- to dark-gray, slope-forming, gypsiferous, bentonitic mudstone; interbedded pale-yellowish-orange sandstone in upper part; forms sparsely vegetated "badlands" topography; approximately 3,345 feet (1,120 m) thick.*

Kmt — Turbidite sandstone in the Mancos Shale - *Locally prominent, cuesta-forming lens of interbedded grayish-orange sandstone and gray mudstone; massive, parallel-laminated, and climbing-ripple internal bedding forms are prominent in the sandstones; approximately 30 feet (9 m) thick.*

Kmo — Oolitic ironstone in the Mancos Shale - *Dark-reddish-brown, calcareous, well-sorted, medium sand-size oolitic ironstone, overlain by thin olive-gray to dark-yellowish-orange silty mudstone; caps isolated knobs of Mancos Shale near the middle of the quadrangle; approximately 5 feet (1.5 m) thick.*

Kmf — Ferron Sandstone Member of the Mancos Shale - *Cuesta-forming, interbedded, dark-yellowish-orange, platy sandstone and gray mudstone; occurs in the lower part of the Mancos Shale; approximately 55 feet (17 m) thick.*

Kmtu — Tununk Member of the Mancos Shale - *Medium- to dark-gray, slope-forming, gypsiferous, bentonitic mudstone; forms sparsely vegetated "badlands" topography; the upper 200+ feet (60+ m) is exposed in the quadrangle.*

Mz — Subsurface strata - *Strata shown in cross-sections but not exposed in the quadrangle; includes the basal part (up to 100 feet [30 m]) of the Mancos Shale, the Dakota Sandstone, and the upper part of the Morrison Formation in many places.*

MAP SYMBOLS

- CONTACT - *Dashed where approximate.*
- NORMAL FAULT - *Dashed where inferred; dotted where covered; bar and ball on downthrown side; queried where uncertain.*
- SYNCLINE AXIS - *Dashed where location inferred.*
- 3000 — STRUCTURAL CONTOUR - *Contour interval 250 feet; dashed where location inferred; drawn on base of Dakota Sandstone; datum is mean sea level. Contours not shown on northern part due to complex structure and sparse data. Modified from Williams (1964).*
- APPROXIMATE TRACE OF Kmt OUTCROP
- STRIKE AND DIP OF BEDDING - *Inclined.*
- GRAVEL PIT
- OIL WELL
- DRY HOLE